



## **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Aviation Safety  
Western Pacific Region

June 26, 2015

# **WRECKAGE EXAMINATION SUMMARY**

**WPR15FA195**

This document contains 11 embedded images.

## **A. ACCIDENT**

Location:	Maricopa, CA
Date:	June 22, 2015
Aircraft:	N206PZ; S312 Tucano T MK1
NTSB Investigator-in-Charge:	Andrew Swick

## **B. PARTICIPANTS**

Andrew Swick-NTSB IIC  
Jack Vanover-NTSB  
Sean T. Kaveney-FAA-FSDO  
Martin Jay Kruse, Ph.D-Honeywell Aerospace  
Les Doud-Hartzell Propeller Inc.

## **C. SUMMARY**

On June 22, 2015 about 0930 Pacific daylight time, an experimental exhibition category Short Brothers PLC S312 Tucano T MK1, airplane, N206PZ, was destroyed when it impacted terrain about 16 miles south of Maricopa, California. The private pilot, who was the sole occupant, was fatally injured. The aircraft was registered to Tucano Flyer LLC and operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as personal flight. Visual meteorological conditions prevailed and a flight plan had not been filed. The flight originated from Camarillo Airport (CMA), Camarillo, California at 0810.

According to the Federal Aviation Administration (FAA), the pilot was in contact with the SoCal Air Route Traffic Control Center (ARTCC) and was receiving advisories while maneuvering over the Chumash Wilderness area. Radar reviewed by NTSB investigators depicted multiple turns, rapid changes in altitude, and airspeed. At 0925 radar contact was lost and no other communication was received from the pilot.

Examination of the accident site revealed that the wreckage was located in a dry creek bed. The airplane had been destroyed by high impact forces and a postimpact fire. The debris field was 641 feet in length and 355 feet wide. A large crater about 11 feet in diameter, about 5 feet deep, was found at the beginning of the debris field. Postimpact fire was observed along the debris path and throughout the surrounding terrain. About 1 acre of land was burned. All major structural components and primary flight controls were located within the debris path.

A witness stated that the airplane flew directly over his house in straight and level flight between 500 and 750 feet above ground level (AGL). He further stated that the sound was different than other airplanes that fly in the area, but it didn't sound like anything was wrong. The airplane continued to fly straight and level in an easterly direction towards Quatal Canyon road.

Another witness located at her residence on Quatal Canyon road, was about 1 mile northeast from the first witness's location. She was outside when she saw the airplane circle her home and depart eastward paralleling Quatal Road and proceeded to fly up the canyon. She further stated that the

airplane was about 500 feet AGL. The engine sound was loud and consistent. After losing sight of the airplane behind a small hill, smoke and dust was seen rising from the canyon.

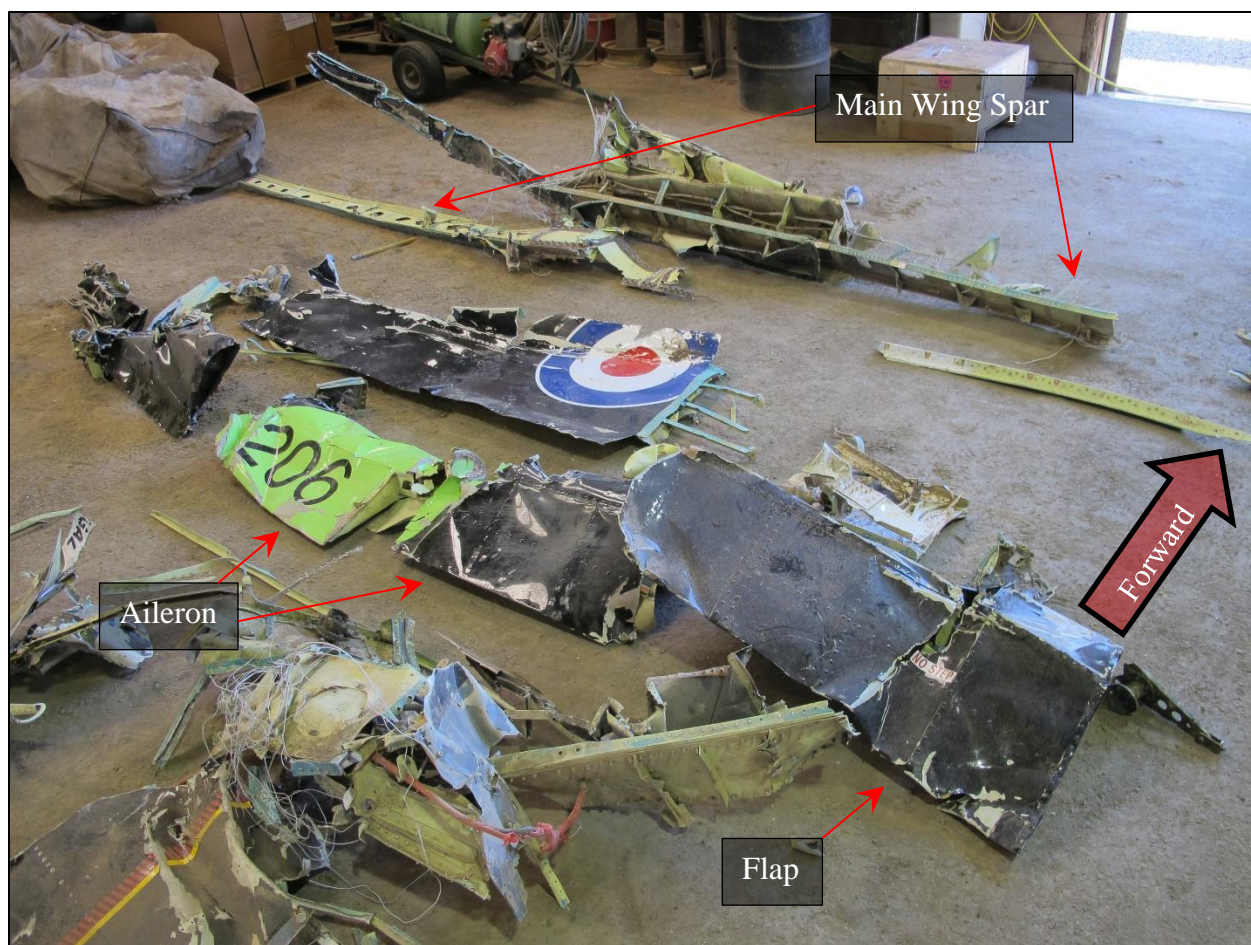
#### **D. Wreckage Examination**

Examination of the recovered wreckage was conducted on June 25 and 26, 2015 at the facilities of Plain Parts in Pleasant Grove, California, by the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), Federal Aviation Administration (FAA), and Honeywell Aerospace. The examination revealed no evidence of any pre-collision mechanical malfunctions or failures that would have precluded normal operation.



**Figure 1. Wreckage Layout**





**Figure 2. Wreckage Layout, Left Wing**

The wing sections were displayed on the ground and revealed leading edge crush damage. The main spar was found in several sections with bending near the midsection. Each of the ailerons were found in two, 3-foot sections. The left-wing flap was identified and had evidence to suggest it was in the retracted position during impact.

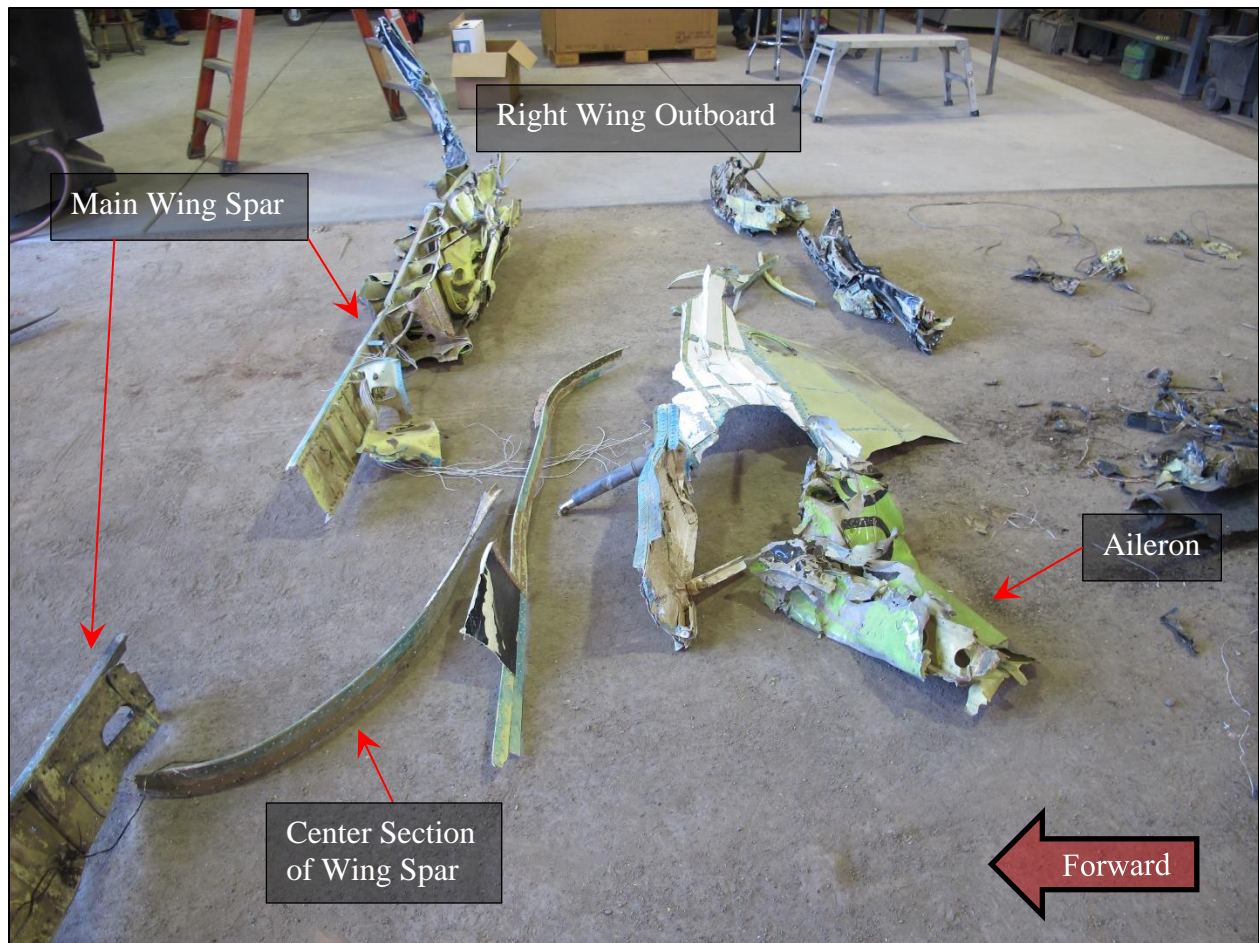
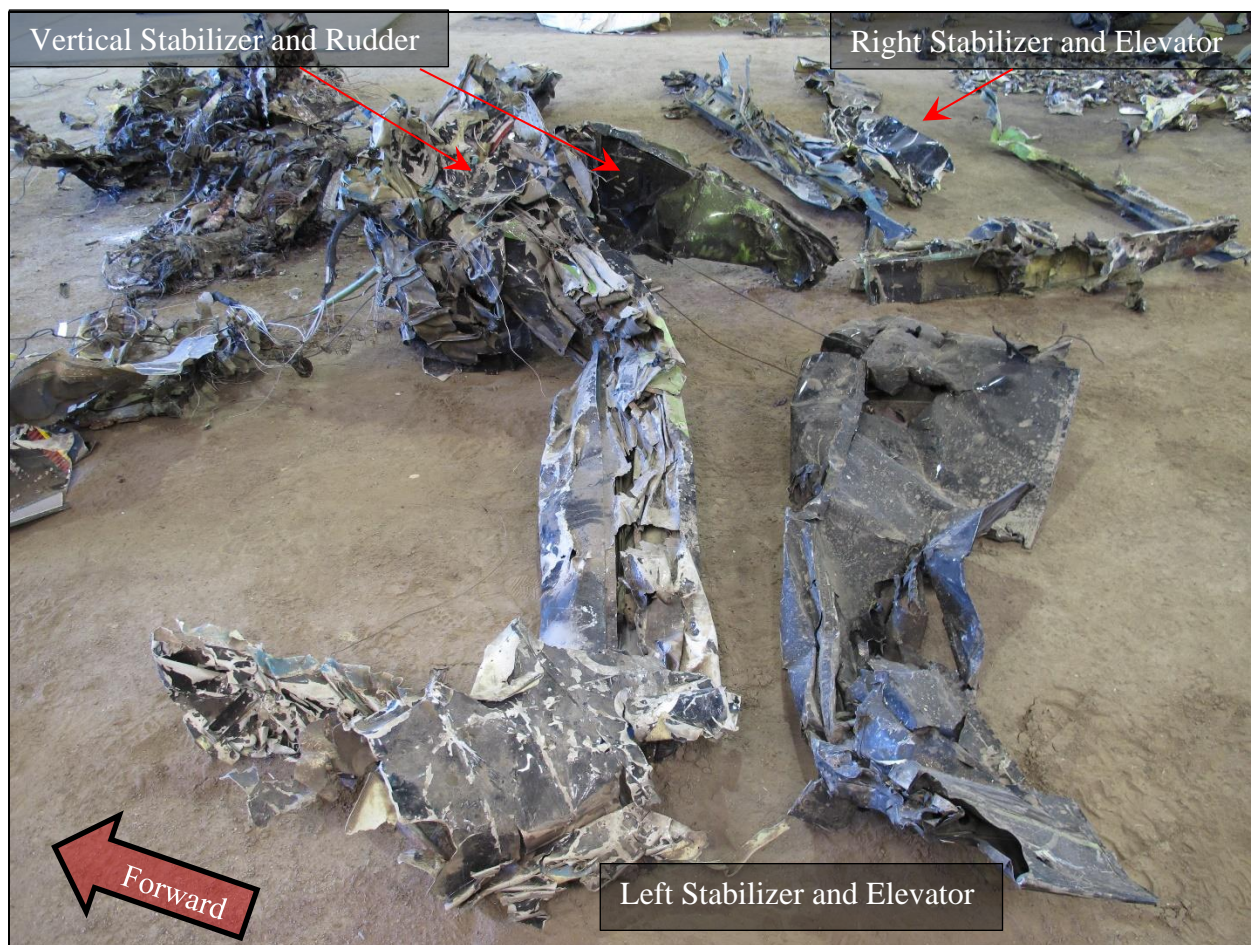


Figure 3. Wreckage Layout, Right Wing





**Figure 4. Empennage**

Both elevators and horizontal stabilizers had impact damage and were crushed. The trim actuator shaft had separated mid-span and 45-degree shear lips were observed on the separation surfaces. The trim actuator shaft was measured from the shaft bolt to the rubber seal and was 3.845 inches in length. During the examination of an exemplar airplane, this measurement was equated to be about .5 (near neutral) pitch trim position.

The rudder and vertical stabilizer had impact damage and remained attached via rudder control cables. The vertical stabilizer and aft fuselage remained attached.



**Figure 5. Propeller Blades**

The propeller assembly separated from the engine during the accident sequence and had impact damage. The cylinder, piston, feathering spring and hub were found separated into numerous sections. Hub sections were removed from two of the blade shanks. The blades revealed leading edge gouging and chordwise scoring from the shank areas to the tips. Two of the blades were bent rearward from the midsection to the tip, and had a decreased pitch twist from the midsection to the tip. Another blade had a slight bend rearward and the last blade was bent forward from the midsection to the tip. For further information see the Hartzell Propeller Teardown Report in the public docket for this accident.





**Figure 6. Recovered Engine and Components**

The engine was found in three major sections; the bull gear, second-stage compressor housing and impeller, and the turbine stator outer vane support housing. Other loose engine parts were found in the debris field. The engine revealed damage signatures consistent with an engine operating at power settings during the impact sequence. For further information see the Engine Wreckage Examination Notes in the public docket for this accident.





**Figure 7. Engine, First Stage Compressor Impeller**

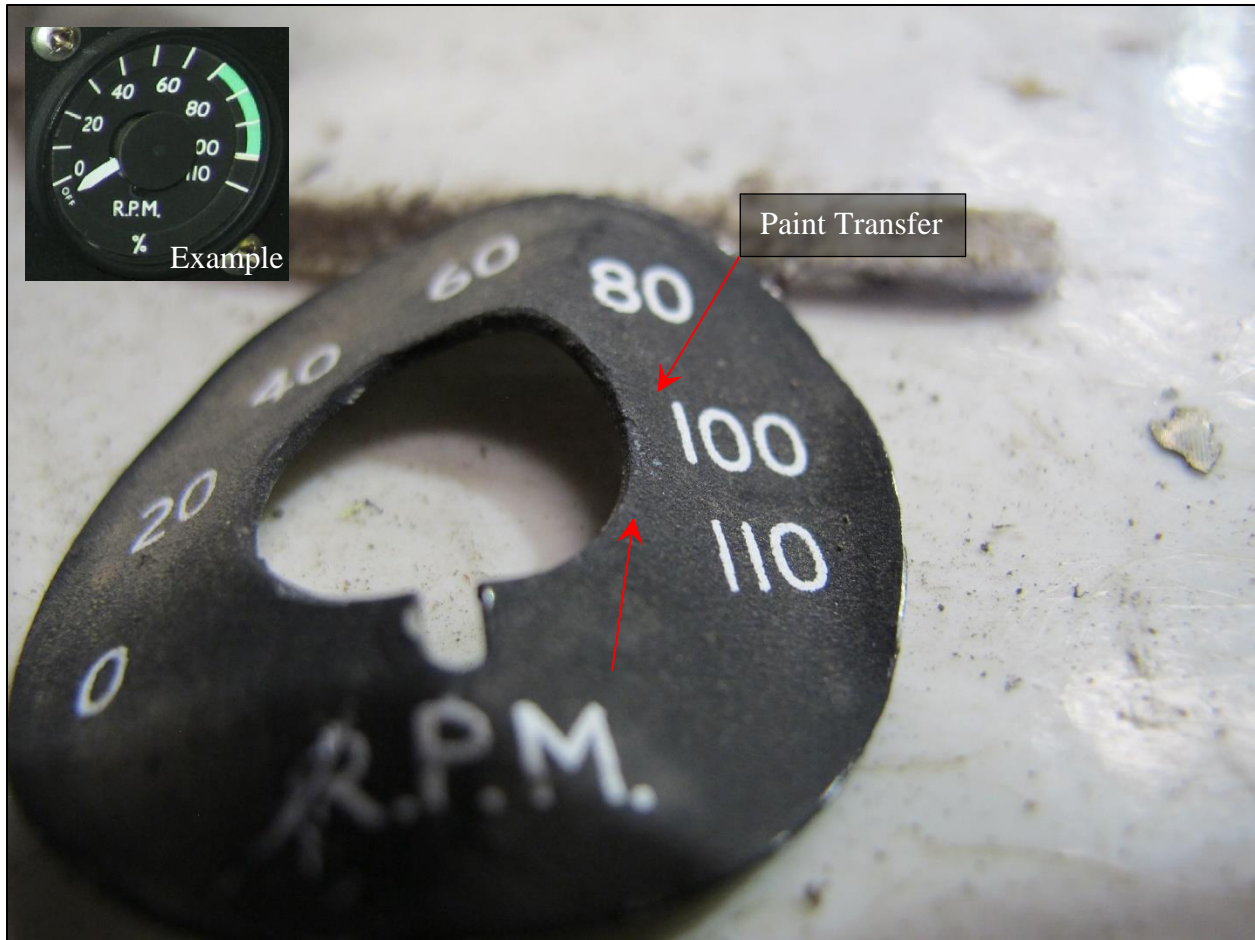


**Figure 8. First-, Second-, Third-Stage Turbine Rotors**





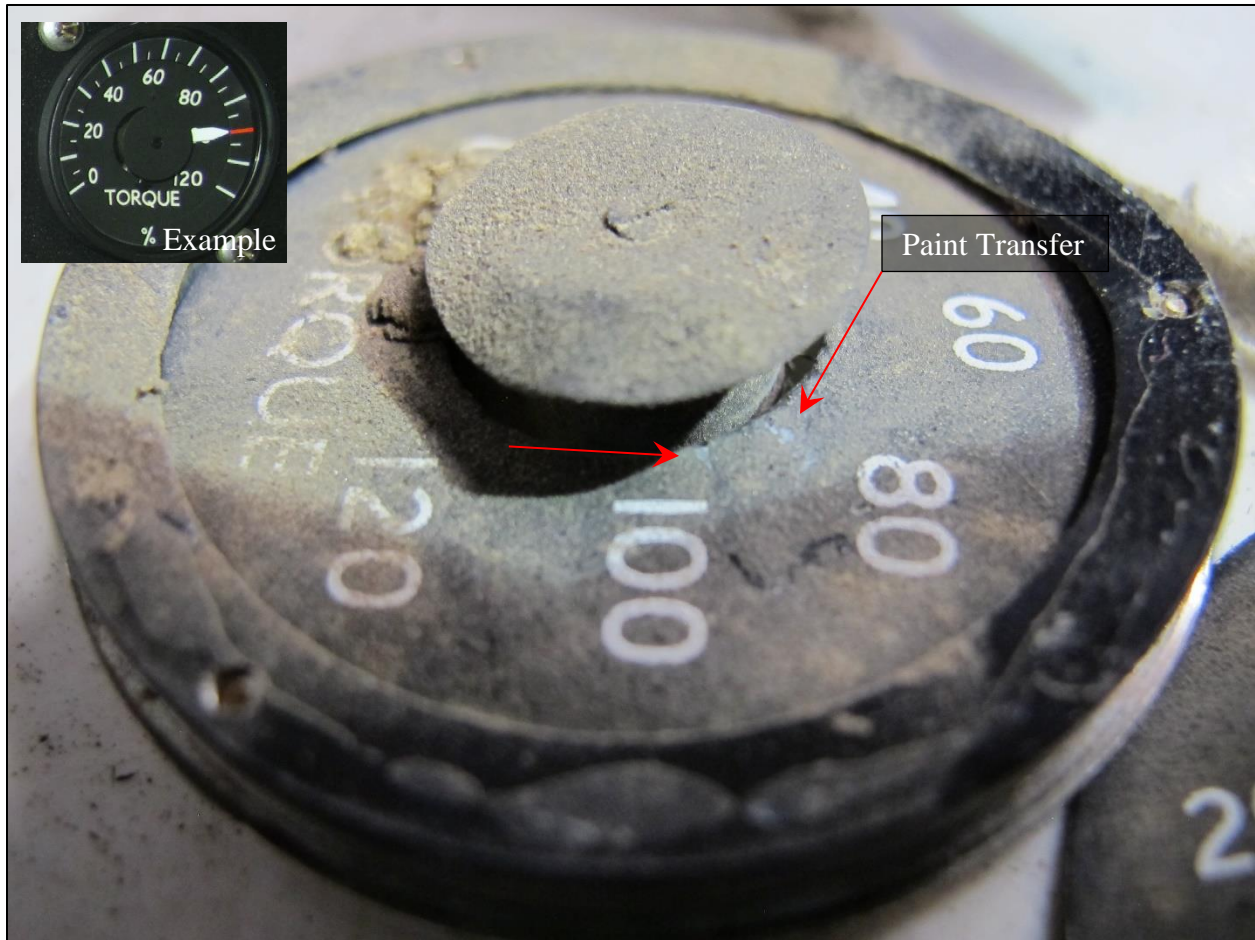
**Figure 9. Second-Stage Compressor Housing and Impeller, Plenum, Combustion Liner, First- and Second-Stage Turbine Stator Vane Outer Supports**



**Figure 10. Instrument, R.P.M. Gauge**

The cabin instruments separated from the instrument panel and had impact damage. The R.P.M. gauge face separated from the instrument housing and was bent. White paint transfer marks are visible near the '100' displayed on the face.





**Figure 11. Instrument, Torque**

The Torque gauge face revealed white paint transfer marks between the '80' and '100' displayed on the face.

Submitted by: Andrew Swick